

## Claims

What is claimed is:

1. A method for providing proxy services in a network of modules included in a work machine environment, the method performed by a gateway and comprising:
  - detecting a first message sent by a source module on a first data link, wherein the first message is directed to a destination module and includes an address identifier corresponding to the destination module;
  - retrieving the first message and extracting the destination address identifier from the message;
  - routing, based on the destination address and an address map, the first message to a proxy logic element that performs functions associated with the destination module.
2. The method of claim 1, wherein detecting a first message on a first data link comprises detecting a first message sent by a source module on a proprietary data link.
3. The method of claim 1, further comprising:
  - providing the first message from the proxy logic element to a second module over a second data link interfaced by the proxy logic element.
4. The method of claim 3, further comprising:
  - receiving a second message responsive to the first message from the second module via the second data link; and
  - routing the second message to the first module over the first data link via the address map.

5. The method of claim 4, further comprising:  
detecting that the first data link is incompatible with the second data link;  
and  
translating the second message into a comparable message consistent with  
the first data link.

6. The method of claim 1, further comprising:  
generating, by the proxy logic element, a second message that is  
responsive to the first message and routing the second message to the source  
module via the first data link.

7. A method for providing proxy services in a network of  
modules included in a work machine environment, the method performed by a  
gateway and comprising:  
receiving a message from a first data link interfaced by control  
logic included in the gateway device, wherein the message is intended for a  
destination module;  
identifying, via an address map, the location of the destination  
module in the work machine environment;  
formatting the message so that it can be processed by the  
destination module; and  
routing the formatted message to the destination module over a  
second data link coupled to the gateway device.

8. A method for providing proxy services in a network of modules included in a work machine environment, the method performed by a gateway and comprising:

monitoring a first data link for messages, wherein the messages are transmitted by source nodes and intended for destination modules;

determining whether a first message intended for a first destination module should be intercepted from the first data link based on a destination address included in the first message;

intercepting the first message when the gateway determines that the message should be intercepted; and

routing, based on information in an address map, the first message to a proxy logic element that performs functions associated with the first destination module.

9. The method of claim 8, wherein the source nodes include at least one of either an on-board module and an off-board system.

10. A proxy control module in a work machine, the proxy module comprising:

means for monitoring a first data link connected to a plurality of modules, each module configured to direct messages to destination modules by adding to the messages an address identifier corresponding to the destination modules;

means for intercepting at least one of the messages based on a determination that the at least one message is intended for a destination module for which the gateway serves as a proxy; and

means for selectively providing, using an address map, the at least one message to program logic that performs work machine control functions similar to the destination module that may be connected to the first data link to perform the same functions.

11. A proxy control module in a work machine, the proxy module comprising:

means for monitoring a first data link connected to a plurality of modules, each module configured to direct messages to destination modules by adding to the messages an address identifier corresponding to the destination modules;

means for determining whether the messages include respective address identifiers that correspond to address identifiers included in an address map;

means for intercepting at least one of the messages based on a determination that the at least one message includes an address identifier that corresponds to an address identifier in the address map; and

means for selectively providing, using an address map, the at least one message to program logic that performs work machine control functions similar to a destination module that may be connected to the first data link to perform the same functions.

12. A system for exchanging information in a work machine environment having a network of modules, the system comprising:

a source module for broadcasting a first message over a first data link that uses a first protocol, wherein the first message is intended for a destination module and includes a destination address identifier associated with the destination module; and

a gateway coupled to the first data link and configured to:

monitor the first data link for messages,

intercept the first message from the first data link based on a determination that the destination address corresponds to proxy logic included in the gateway, and

route the intercepted message, based on information in an address map, to the proxy logic, wherein the proxy logic performs functions associated with the destination module.

13. The system of claim 12, wherein the first data link is a proprietary data link.

14. The system of claim 12, further comprising a second data link that interfaces the proxy logic element.

15. The system of claim 14, wherein the gateway is further configured to transmit information responsive to the first message from the proxy logic element over the second data link.

16. The system of claim 14, wherein the gateway is further configured to receive a second message from the second data link and route, using the address map, the second message over the first data link to the source module.

17. The system of claim 16, wherein the second data link is a non-proprietary standard data link including one of J1939, CAN, MODBUS, serial standard data link, and the Ethernet.

18. The system of claim 17, wherein the gateway is further configured to translate the second message into a comparable message consistent with the first data link.

19. A system for exchanging information in a work machine environment having a network of modules, the system comprising:

- a source module for broadcasting a first message over a first data link that uses a first protocol, wherein the first message is intended for a destination module and includes a destination address identifier associated with the destination module; and

- a gateway coupled to the first data link and configured to:

- monitor the first data link for messages,

- retrieve the first message from the first data link,

- extract the destination address identifier from the first message,

- search an address map for the destination address included in the first message, and

- when the destination address is found in the address map, route, based on information in the address map, the first message to a proxy logic element that performs functions associated with the destination module, wherein the proxy logic element is located in the gateway.

20. The system of claim 19, wherein the first data link is a proprietary data link.

21. The system of claim 19, further comprising a second data link that interfaces the proxy logic element.

22. The system of claim 21, wherein the gateway is further configured to transmit information responsive to the first message from the proxy logic element over the second data link.

23. The system of claim 21, wherein the gateway is further configured to receive a second message from the second data link and route, using the address map, the second message over the first data link to the source module.

24. The system of claim 23, wherein the second data link is a non-proprietary standard data link including one of J1939, CAN, MODBUS, serial standard data link, and the Ethernet.

25. The system of claim 24, wherein the gateway is further configured to translate the second message into a comparable message consistent with the first data link.



26. A system for exchanging information in a work machine environment, the system comprising:

a network of modules coupled to a first data link included in a work machine;

a master controller remotely located with respect to the work machine and coupled to the work machine via a wireless data link, wherein the master controller is configured to control the modules; and

a gateway included in the work machine and configured to:

receive information from the master controller via the wireless data link, the information related to the modules, and

transmit messages to the modules in accordance with the received information.

27. A system for exchanging information in a work machine environment, the system comprising:

a network of modules coupled to a first data link included in a work machine;

a master controller remotely located with respect to the work machine and coupled to the work machine via a wireless data link, wherein the master controller is configured to control the modules; and

a gateway included in the work machine and configured to:

monitor the first data link for messages, wherein the messages are sent by the modules and intended for the master controller,

intercept the messages from the first data link based on a determination that the messages are intended for the master controller, and

route the intercepted message, based on information in an address map, to proxy logic, wherein the proxy logic performs functions associated with the master controller.

28. A computer-readable medium including instructions for performing a method in a work machine environment, the method performed by a gateway and comprising:

monitoring a first data link for messages, wherein the messages are transmitted by source nodes and intended for destination modules;

determining whether a first message intended for a first destination module should be intercepted from the first data link based on a destination address included in the first message;

intercepting the first message when the gateway determines that the message should be intercepted; and

routing, based on information in an address map, the first message to a proxy logic element that performs functions associated with the first destination module.

29. A computer-readable medium including instructions for performing a method in a work machine environment, the method performed by a gateway and comprising:

monitoring a first data link connected to a plurality of modules, each module configured to direct messages to destination modules by adding to the messages an address identifier corresponding to the destination modules;

intercepting at least one of the messages based on a determination that the at least one message is intended for a destination module for which the gateway serves as a proxy; and

selectively providing, using an address map, the at least one message to program logic that performs work machine control functions similar to the destination module that may be connected to the first data link to perform the same functions.